Instructions: Complete each of the following exercises for practice.

- 1. Compute the vector given by the directed line segment \overrightarrow{AB} for points A and B given below.
 - (a) A = (0, 3, 1), B = (2, 3, -1)

- (b) A = (0, 6, -1), B = (3, 4, 4)
- 2. Compute $\mathbf{u} + \mathbf{v}$, $2\mathbf{u} 3\mathbf{v}$, and $5\mathbf{v} \mathbf{u}$ for \mathbf{u} , \mathbf{v} below; do so both geometrically and algebraically.
 - (a) $\mathbf{u} = \langle -3, 4 \rangle$, $\mathbf{v} = \langle 2, 1 \rangle$

- (b) $\mathbf{u} = \langle 1, -2 \rangle, \ \mathbf{v} = \langle 1, 1 \rangle$
- 3. Find the unit vector in the direction of the given vector.
 - (a) $8\mathbf{i} \mathbf{j} + 4\mathbf{k}$

(b) -5i + 3j - k

- (c) (1, 2, 3)
- 4. Find the vector that has the same direction as (6,2,-3) but has length 4.